

=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 09:16:33 ON 30 OCT 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 30 Oct 2006 VOL 145 ISS 19
FILE LAST UPDATED: 29 Oct 2006 (20061029/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d 18 bib abs hitstr retable tot

L8 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:430508 HCAPLUS
DN 141:9609
TI Lithium secondary battery
IN OKUMURA, Takefumi; Nishimura, Shin; Iwayasu, Norio; Yokoyama, Shoichi; Yabe, Takeshi
PA Japan
SO U.S. Pat. Appl. Publ., 14 pp., Cont.-in-part of U.S. Ser. No. 623,497.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004101759	A1	20040527	US 2003-717646	20031121
	US 2004101758	A1	20040527	US 2003-623497	20030722

PRAI JP 2002-337790 A 20021121
US 2003-623497 A2 20030722

AB The object of the present invention is to provide a lithium secondary battery of high output. According to the present invention, there is provided a lithium secondary battery having a pos. electrode and a neg. electrode which reversibly intercalate and deintercalate lithium and an electrolyte containing an ion conductive material and an electrolytic salt, where the electrolyte contains an electrolytic salt and a boron-containing compound represented by the following formula $Z1(AO)mOB(O(AO)nZ2)O(AO)pZ3$ where, B is boron atom, Z1, Z2, and Z3 are the organic groups having an acryloyl group or a methacryloyl group; AO represents an oxyalkylene group of C1-6 and comprises one, or two or more of the oxyalkylene groups; and m, n and p each represents an average degree of polymerization of the oxyalkylene

group and are >0 and <4 provided that $m+n+p \geq 1$.

IT 693782-27-3P 693782-28-4P 693782-29-5P
693782-30-8P 693782-31-9P 693782-32-0P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (lithium secondary battery)

RN 693782-27-3 HCAPLUS
 CN Boric acid (H₃BO₃), 4-[4-(4-methoxybutoxy)butoxy]butyl
 4-[4-[(2-methyl-1-oxo-2-propenyl)oxy]butoxy]butyl ester (9CI) (CA INDEX
 NAME)

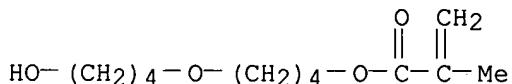
CM 1

CRN 693782-26-2
 CMF C₁₃ H₂₈ O₄

MeO—(CH₂)₄—O—(CH₂)₄—O—(CH₂)₄—OH

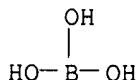
CM 2

CRN 78972-17-5
 CMF C₁₂ H₂₂ O₄



CM 3

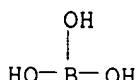
CRN 10043-35-3
 CMF B H₃ O₃



RN 693782-28-4 HCAPLUS
 CN Boric acid (H₃BO₃), 2-[2-(2-methoxyethoxy)ethoxy]ethyl
 2-[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethoxy]ethyl ester (9CI) (CA INDEX
 NAME)

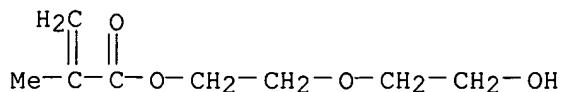
CM 1

CRN 10043-35-3
 CMF B H₃ O₃



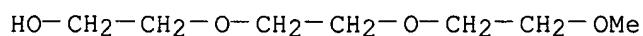
CM 2

CRN 2351-43-1
 CMF C8 H14 O4



CM 3

CRN 112-35-6
 CMF C7 H16 O4



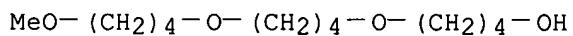
RN 693782-29-5 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 4-(4-hydroxybutoxy)butyl ester, ester with boric acid (H3BO3) 4-[4-(4-methoxybutoxy)butoxy]butyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 693782-27-3
 CMF C13 H28 O4 . x C12 H22 O4 . x B H3 O3

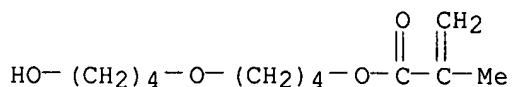
CM 2

CRN 693782-26-2
 CMF C13 H28 O4



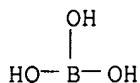
CM 3

CRN 78972-17-5
 CMF C12 H22 O4



CM 4

CRN 10043-35-3
 CMF B H3 O3

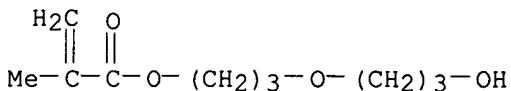


RN 693782-30-8 HCAPLUS

CN Boric acid (H₃BO₃), 3-[3-(3-methoxypropoxy)propoxy]propyl
3-[3-[(2-methyl-1-oxo-2-propenyl)oxy]propoxy]propyl ester (9CI) (CA INDEX
NAME)

CM 1

CRN 78972-16-4

CMF C₁₀ H₁₈ O₄

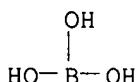
CM 2

CRN 13133-29-4

CMF C₁₀ H₂₂ O₄MeO-(CH₂)₃-O-(CH₂)₃-O-(CH₂)₃-OH

CM 3

CRN 10043-35-3

CMF B H₃ O₃

RN 693782-31-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-(3-hydroxypropoxy)propyl ester, ester with
boric acid (H₃BO₃) 3-[3-(3-methoxypropoxy)propoxy]propyl ester,
homopolymer (9CI) (CA INDEX NAME)

CM 1

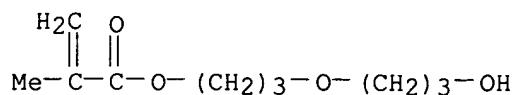
CRN 693782-30-8

CMF C₁₀ H₂₂ O₄ . x C₁₀ H₁₈ O₄ . x B H₃ O₃

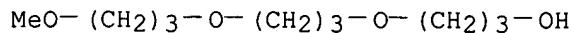
CM 2

CRN 78972-16-4

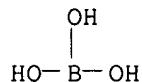
CMF C₁₀ H₁₈ O₄



CM 3

CRN 13133-29-4
CMF C10 H22 O4

CM 4

CRN 10043-35-3
CMF B H3 O3

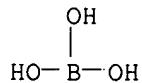
RN 693782-32-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-(2-hydroxyethoxy)ethyl ester, ester with boric acid (H3BO3) 2-[2-(2-methoxyethoxy)ethoxy]ethyl ester, homopolymer (9CI) (CA INDEX NAME)

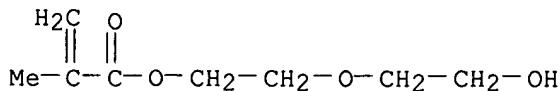
CM 1

CRN 693782-28-4
CMF C8 H14 O4 . x C7 H16 O4 . x B H3 O3

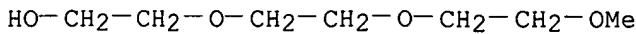
CM 2

CRN 10043-35-3
CMF B H3 O3

CM 3

CRN 2351-43-1
CMF C8 H14 O4

CM 4

CRN 112-35-6
CMF C7 H16 O4L8 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:430507 HCAPLUS

DN 141:9608

TI Lithium secondary battery

IN Okumura, Takefumi; Nishimura, Shin; Iwayasu, Norio; Yokoyama, Shoichi; Yabe, Takeshi

PA Japan

SO U.S. Pat. Appl. Publ., 14 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004101758	A1	20040527	US 2003-623497	20030722
	FR 2847721	A1	20040528	FR 2003-13581	20031120
	FR 2847721	B1	20060804		
	KR 2004045326	A	20040601	KR 2003-82489	20031120
	CN 1503398	A	20040609	CN 2003-10118013	20031120
	US 2004101759	A1	20040527	US 2003-717646	20031121
	JP 2004186150	A2	20040702	JP 2003-391808	20031121
PRAI	JP 2002-337790	A	20021121		
	US 2003-623497	A2	20030722		

AB The object of the present invention is to provide a lithium secondary battery of high output. According to the present invention, there is provided a lithium secondary battery having a pos. electrode and a neg. electrode which reversibly intercalate and deintercalate lithium and an electrolyte containing an ion conductive material and an electrolytic salt, where the electrolyte contains an electrolytic salt and a boron-containing compound represented by the formula $Z1(AO)mOB(O(AO)nZ2)O(AO)pZ3$ or a polymer thereof (where B is a boron atom; Z1, Z2, and Z3 are organic groups having an acryloyl group or a methacryloyl group; AO represents an oxyalkylene group of C1-6 and comprises one or two or more of the oxyalkylene groups; and m, n and p each represent an average degree of polymerization of the oxyalkylene group

and are 0-4).

IT 693782-27-3P 693782-28-4P 693782-29-5P

693782-30-8P 693782-31-9P 693782-32-0P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(lithium secondary battery)

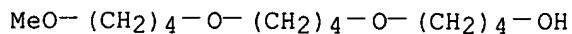
RN 693782-27-3 HCAPLUS

CN Boric acid (H3BO3), 4-[4-(4-methoxybutoxy)butoxy]butyl
4-[4-[(2-methyl-1-oxo-2-propenyl)oxy]butoxy]butyl ester (9CI) (CA INDEX
NAME)

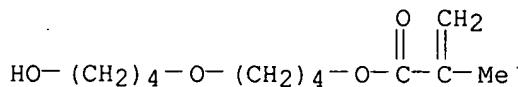
CM 1

CRN 693782-26-2

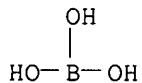
CMF C13 H28 O4



CM 2

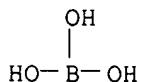
CRN 78972-17-5
CMF C12 H22 O4

CM 3

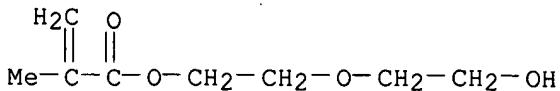
CRN 10043-35-3
CMF B H3 O3

RN 693782-28-4 HCAPLUS
 CN Boric acid (H3BO3), 2-[2-(2-methoxyethoxy)ethoxy]ethyl
 2-[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethoxy]ethyl ester (9CI) (CA INDEX
 NAME)

CM 1

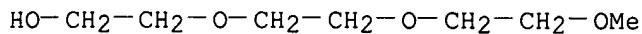
CRN 10043-35-3
CMF B H3 O3

CM 2

CRN 2351-43-1
CMF C8 H14 O4

CM 3

CRN 112-35-6
 CMF C7 H16 O4



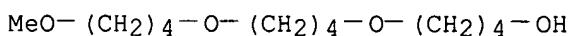
RN 693782-29-5 HCPLUS
 CN 2-Propenoic acid, 2-methyl-, 4-(4-hydroxybutoxy)butyl ester, ester with boric acid (H₃BO₃) 4-[4-(4-methoxybutoxy)butoxy]butyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 693782-27-3
 CMF C13 H28 O4 . x C12 H22 O4 . x B H3 O3

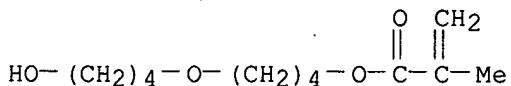
CM 2

CRN 693782-26-2
 CMF C13 H28 O4



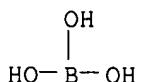
CM 3

CRN 78972-17-5
 CMF C12 H22 O4



CM 4

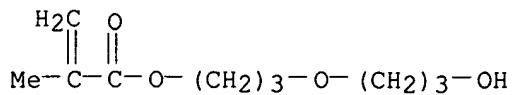
CRN 10043-35-3
 CMF B H3 O3



RN 693782-30-8 HCPLUS
 CN Boric acid (H₃BO₃), 3-[3-(3-methoxypropoxy)propoxy]propyl 3-[3-[(2-methyl-1-oxo-2-propenyl)oxy]propoxy]propyl ester (9CI) (CA INDEX NAME)

CM 1

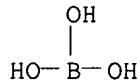
CRN 78972-16-4
 CMF C10 H18 O4



CM 2

CRN 13133-29-4
CMF C10 H22 O4MeO - (CH₂)₃ - O - (CH₂)₃ - O - (CH₂)₃ - OH

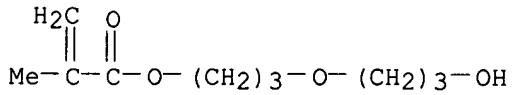
CM 3

CRN 10043-35-3
CMF B H3 O3RN 693782-31-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(3-hydroxypropoxy)propyl ester, ester with boric acid (H₃BO₃) 3-[3-(3-methoxypropoxy)propoxy]propyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 693782-30-8
CMF C10 H22 O4 . x C10 H18 O4 . x B H3 O3

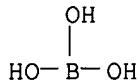
CM 2

CRN 78972-16-4
CMF C10 H18 O4

CM 3

CRN 13133-29-4
CMF C10 H22 O4MeO - (CH₂)₃ - O - (CH₂)₃ - O - (CH₂)₃ - OH

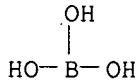
CM 4

CRN 10043-35-3
CMF B H3 O3RN 693782-32-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-(2-hydroxyethoxy)ethyl ester, ester with boric acid (H3BO3) 2-[2-(2-methoxyethoxy)ethoxy]ethyl ester, homopolymer (9CI) (CA INDEX NAME)

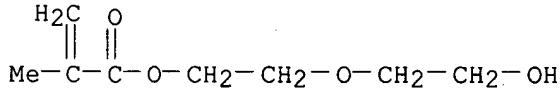
CM 1

CRN 693782-28-4
CMF C8 H14 O4 . x C7 H16 O4 . x B H3 O3

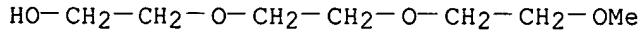
CM 2

CRN 10043-35-3
CMF B H3 O3

CM 3

CRN 2351-43-1
CMF C8 H14 O4

CM 4

CRN 112-35-6
CMF C7 H16 O4L8 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:427714 HCAPLUS
DN 141:9606
TI Boron-containing compound, ion-conductive polymer and polyelectrolyte for

electrochemical devices

IN OKUMURA, Takefumi; Nishimura, Shin; Iwayasu,

Norio; Yokoyama, Shoichi; Yabe, Takeshi

PA Hitachi, Ltd., Japan; NOF Corporation

SO Eur. Pat. Appl., 25 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1422781	A1	20040526	EP 2003-26140	20031113
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2004182982	A2	20040702	JP 2003-389159	20031119
	KR 2004045322	A	20040601	KR 2003-82461	20031120
	CN 1502644	A	20040609	CN 2003-10118012	20031120
	US 2004147697	A1	20040729	US 2003-717645	20031121
PRAI	JP 2002-337789	A	20021121		
	EP 2003-13841	A	20030618		

OS MARPAT 141:9606

AB An object of the present invention is to provide a boron-containing compound capable of forming an ion-conductive polyelectrolyte having high ion-conductive properties, and a polymer of the compound. According to the present invention, there are provided a polymerizable boron-containing compound of formula $Z_1(AO)pOB(O(AO)mZ_2)O(AO)nZ_3$ [where B is boron atom; Z_1 , Z_2 , and Z_3 are organic groups having an acryloyl or methacryloyl group; AOs are independently an oxyalkylene group of C1-6 and are of one or more kinds; and m , n and p are independently an average number of moles of the oxyalkylene group(s) added of <4 and >0, provided that $m+n+p \geq 1$] a polymer thereof, a polymer of a compound of formula $Z_4(AO)p_1OB(O(AO)m_1Z_5)O(AO)n_1Z_6$ and a compound of formula $R_1(AO)p_2OB(O(AO)m_2R_2)O(AO)n_2R_3$ [where Z_4 , Z_5 , and Z_6 is an organic group having an acryloyl or methacryloyl group; R_1 , R_2 and R_3 are independently a hydrocarbon group of C1-10; AOs are independently an oxyalkylene group of C1-6 and are of one or more kinds; and m_1 , n_1 , p_1 , m_2 , n_2 , and p_2 are independently an average no. of moles of the oxyalkylene group(s) added of <4 and >0, provided that each of the sum of $m_1+n_1+p_1$ and the sum of $m_2+n_2+p_2 \geq 1$] and a polyelectrolyte for electrochem. device comprising either of these polymers and at least one electrolyte salt.:

IT 693782-27-3P 693782-28-4P 693782-29-5P

693782-30-8P 693782-31-9P 693782-32-0P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(boron-containing compound, ion-conductive polymer and polyelectrolyte for electrochem. devices)

RN 693782-27-3 HCAPLUS

CN Boric acid (H₃BO₃), 4-[4-(4-methoxybutoxy)butoxy]butyl 4-[4-[(2-methyl-1-oxo-2-propenyl)oxy]butoxy]butyl ester (9CI) (CA INDEX NAME)

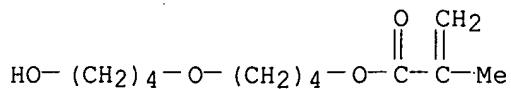
CM 1

CRN 693782-26-2

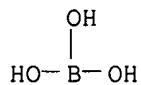
CMF C13 H28 O4

MeO—(CH₂)₄—O—(CH₂)₄—O—(CH₂)₄—OH

CM 2

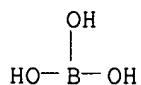
CRN 78972-17-5
CMF C12 H22 O4

CM 3

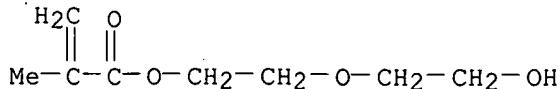
CRN 10043-35-3
CMF B H3 O3

RN 693782-28-4 HCAPLUS
 CN Boric acid (H3BO3), 2-[2-(2-methoxyethoxy)ethoxy]ethyl
 2-[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethoxy]ethyl ester (9CI) (CA INDEX
 NAME)

CM 1

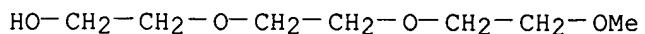
CRN 10043-35-3
CMF B H3 O3

CM 2

CRN 2351-43-1
CMF C8 H14 O4

CM 3

CRN 112-35-6
CMF C7 H16 O4



RN 693782-29-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 4-(4-hydroxybutoxy)butyl ester, ester with boric acid (H3BO3) 4-[4-(4-methoxybutoxy)butoxy]butyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

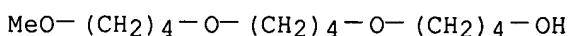
CRN 693782-27-3

CMF C13 H28 O4 . x C12 H22 O4 . x B H3 O3

CM 2

CRN 693782-26-2

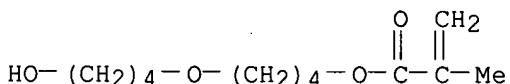
CMF C13 H28 O4



CM 3

CRN 78972-17-5

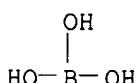
CMF C12 H22 O4



CM 4

CRN 10043-35-3

CMF B H3 O3



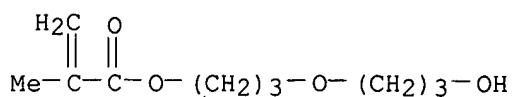
RN 693782-30-8 HCAPLUS

CN Boric acid (H3BO3), 3-[3-(3-methoxypropoxy)propoxy]propyl 3-[3-[(2-methyl-1-oxo-2-propenyl)oxy]propoxy]propyl ester (9CI) (CA INDEX NAME)

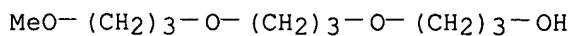
CM 1

CRN 78972-16-4

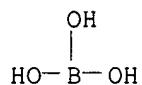
CMF C10 H18 O4



CM 2

CRN 13133-29-4
CMF C10 H22 O4

CM 3

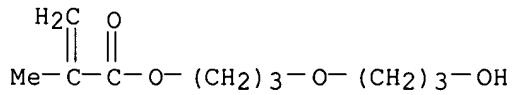
CRN 10043-35-3
CMF B H3 O3

RN 693782-31-9 HCAPLUS.
 CN 2-Propenoic acid, 2-methyl-, 3-(3-hydroxypropoxy)propyl ester, ester with boric acid (H3BO3) 3-[3-(3-methoxypropoxy)propoxy]propyl ester, homopolymer (9CI) (CA INDEX NAME)

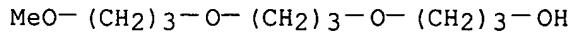
CM 1

CRN 693782-30-8
CMF C10 H22 O4 . x C10 H18 O4 . x B H3 O3

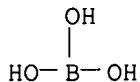
CM 2

CRN 78972-16-4
CMF C10 H18 O4

CM 3

CRN 13133-29-4
CMF C10 H22 O4

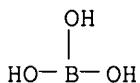
CM 4

CRN 10043-35-3
CMF B H3 O3RN 693782-32-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-(2-hydroxyethoxy)ethyl ester, ester with
boric acid (H3BO3) 2-[2-(2-methoxyethoxy)ethoxy]ethyl ester, homopolymer
(9CI) (CA INDEX NAME)

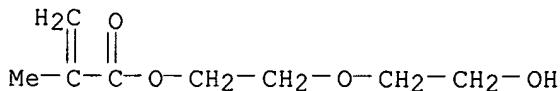
CM 1

CRN 693782-28-4
CMF C8 H14 O4 . x C7 H16 O4 . x B H3 O3

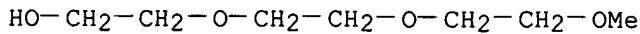
CM 2

CRN 10043-35-3
CMF B H3 O3

CM 3

CRN 2351-43-1
CMF C8 H14 O4

CM 4

CRN 112-35-6
CMF C7 H16 O4

=> fil reg
 FILE 'REGISTRY' ENTERED AT 09:16:48 ON 30 OCT 2006
 USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
 PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

COPYRIGHT (C) 2006 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 29 OCT 2006 HIGHEST RN 911424-89-0
 DICTIONARY FILE UPDATES: 29 OCT 2006 HIGHEST RN 911424-89-0

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH June 30, 2006

Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=> d ide can tot 14

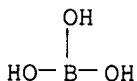
L4 ANSWER 1 OF 6 REGISTRY COPYRIGHT 2006 ACS on STN
 RN 693782-32-0 REGISTRY
 ED Entered STN: 16 Jun 2004
 CN 2-Propenoic acid, 2-methyl-, 2-(2-hydroxyethoxy)ethyl ester, ester with boric acid (H3BO3) 2-[2-(2-methoxyethoxy)ethoxy]ethyl ester, homopolymer (9CI) (CA INDEX NAME)
 MF (C8 H14 O4 . x C7 H16 O4 . x B H3 O3)x
 CI PMS
 PCT Polyacrylic, Polyether
 SR CA
 LC STN Files: CA, CAPLUS, USPATFULL

CM 1

CRN 693782-28-4
 CMF C8 H14 O4 . x C7 H16 O4 . x B H3 O3

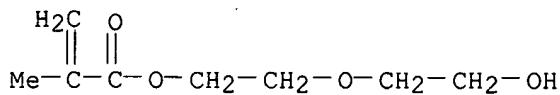
CM 2

CRN 10043-35-3
 CMF B H3 O3

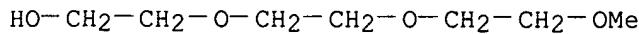


CM 3

CRN 2351-43-1
 CMF C8 H14 O4



CM 4

CRN 112-35-6
CMF C7 H16 O43 REFERENCES IN FILE CA (1907 TO DATE)
3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 141:9609

REFERENCE 2: 141:9608

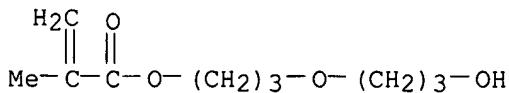
REFERENCE 3: 141:9606

L4 ANSWER 2 OF 6 REGISTRY COPYRIGHT 2006 ACS on STN
 RN 693782-31-9 REGISTRY
 ED Entered STN: 16 Jun 2004
 CN 2-Propenoic acid, 2-methyl-, 3-(3-hydroxypropoxy)propyl ester, ester with
 boric acid (H3BO3) 3-[3-(3-methoxypropoxy)propoxy]propyl ester,
 homopolymer (9CI) (CA INDEX NAME)
 MF (C10 H22 O4 . x C10 H18 O4 . x B H3 O3)x
 CI PMS
 PCT Polyacrylic, Polyether
 SR CA
 LC STN Files: CA, CAPLUS, USPATFULL

CM 1

CRN 693782-30-8
CMF C10 H22 O4 . x C10 H18 O4 . x B H3 O3

CM 2

CRN 78972-16-4
CMF C10 H18 O4

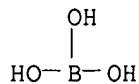
CM 3

CRN 13133-29-4
CMF C10 H22 O4

MeO—(CH₂)₃—O—(CH₂)₃—O—(CH₂)₃—OH

CM 4

CRN 10043-35-3
CMF B H3 O3



3 REFERENCES IN FILE CA (1907 TO DATE)
3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 141:9609

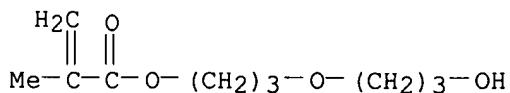
REFERENCE 2: 141:9608

REFERENCE 3: 141:9606

L4 ANSWER 3 OF 6 REGISTRY COPYRIGHT 2006 ACS on STN
RN 693782-30-8 REGISTRY
ED Entered STN: 16 Jun 2004
CN Boric acid (H₃BO₃), 3-[3-(3-methoxypropoxy)propoxy]propyl
3-[3-[(2-methyl-1-oxo-2-propenyl)oxy]propoxy]propyl ester (9CI) (CA INDEX
NAME)
MF C10 H22 O4 . x C10 H18 O4 . x B H3 O3
CI COM
SR CA
LC STN Files: CA, CAPLUS, USPATFULL

CM 1

CRN 78972-16-4
CMF C10 H18 O4



CM 2

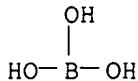
CRN 13133-29-4
CMF C10 H22 O4

MeO—(CH₂)₃—O—(CH₂)₃—O—(CH₂)₃—OH

CM 3

CRN 10043-35-3

CMF B H3 O3



3 REFERENCES IN FILE CA (1907 TO DATE)
 3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 141:9609

REFERENCE 2: 141:9608

REFERENCE 3: 141:9606

L4 ANSWER 4 OF 6 REGISTRY COPYRIGHT 2006 ACS on STN

RN 693782-29-5 REGISTRY

ED Entered STN: 16 Jun 2004

CN 2-Propenoic acid, 2-methyl-, 4-(4-hydroxybutoxy)butyl ester, ester with boric acid (H3BO3) 4-[4-(4-methoxybutoxy)butoxy]butyl ester, homopolymer (9CI) (CA INDEX NAME)

MF (C13 H28 O4 . x C12 H22 O4 . x B H3 O3)x

CI PMS

PCT Polyacrylic, Polyether

SR CA

LC STN Files: CA, CAPLUS, USPATFULL

CM 1

CRN 693782-27-3

CMF C13 H28 O4 . x C12 H22 O4 . x B H3 O3

CM 2

CRN 693782-26-2

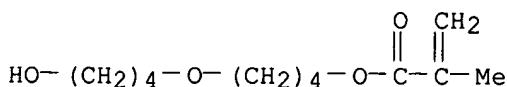
CMF C13 H28 O4

MeO- (CH₂)₄-O- (CH₂)₄-O- (CH₂)₄-OH

CM 3

CRN 78972-17-5

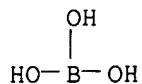
CMF C12 H22 O4



CM 4

CRN 10043-35-3

CMF B H3 O3



3 REFERENCES IN FILE CA (1907 TO DATE)
 3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 141:9609

REFERENCE 2: 141:9608

REFERENCE 3: 141:9606

L4 ANSWER 5 OF 6 REGISTRY COPYRIGHT 2006 ACS on STN

RN 693782-28-4 REGISTRY

ED Entered STN: 16 Jun 2004

CN Boric acid (H3BO3), 2-[2-(2-methoxyethoxy)ethoxy]ethyl
 2-[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethoxy]ethyl ester (9CI) (CA INDEX
 NAME)

MF C8 H14 O4 . x C7 H16 O4 . x B H3 O3

CI COM

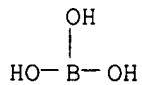
SR CA

LC STN Files: CA, CAPLUS, USPATFULL

CM 1

CRN 10043-35-3

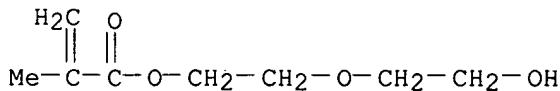
CMF B H3 O3



CM 2

CRN 2351-43-1

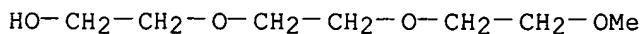
CMF C8 H14 O4



CM 3

CRN 112-35-6

CMF C7 H16 O4



3 REFERENCES IN FILE CA (1907 TO DATE)
 3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 141:9609

REFERENCE 2: 141:9608

REFERENCE 3: 141:9606

L4 ANSWER 6 OF 6 REGISTRY COPYRIGHT 2006 ACS on STN
 RN 693782-27-3 REGISTRY
 ED Entered STN: 16 Jun 2004
 CN Boric acid (H3BO3), 4-[4-(4-methoxybutoxy)butoxy]butyl
 4-[4-[(2-methyl-1-oxo-2-propenyl)oxy]butoxy]butyl ester (9CI) (CA INDEX
 NAME)
 MF C13 H28 O4 . x C12 H22 O4 . x B H3 O3
 CI COM
 SR CA
 LC STN Files: CA, CAPLUS, USPATFULL

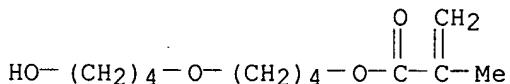
CM 1

CRN 693782-26-2
 CMF C13 H28 O4

MeO—(CH₂)₄—O—(CH₂)₄—O—(CH₂)₄—OH

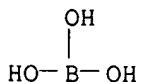
CM 2

CRN 78972-17-5
 CMF C12 H22 O4



CM 3

CRN 10043-35-3
 CMF B H3 O3



3 REFERENCES IN FILE CA (1907 TO DATE)
 3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 141:9609

REFERENCE 2: 141:9608

REFERENCE 3: 141:9606

=> d his

(FILE 'HOME' ENTERED AT 09:13:05 ON 30 OCT 2006)
SET COST OFFFILE 'HCAPLUS' ENTERED AT 09:13:16 ON 30 OCT 2006
L1 2 S (US20040101758 OR US20020101759)/PN OR (US2003-717646# OR US2
SEL RNFILE 'REGISTRY' ENTERED AT 09:14:00 ON 30 OCT 2006
L2 20 S E1-E20
L3 7 S L2 AND B/ELS NOT RIS/CI
L4 6 S L3 NOT LI/ELSFILE 'HCAPLUS' ENTERED AT 09:14:49 ON 30 OCT 2006
L5 3 S L4
L6 3 S L5 AND (OKUMURA? OR TAKEFUMI? OR NISHIMURA? OR SHIN? OR IWAYA
L7 1 S L5 AND HITACHI?/PA,CS
L8 3 S L5-L7
L9 1 S L8 NOT L1
SEL RNFILE 'REGISTRY' ENTERED AT 09:15:54 ON 30 OCT 2006
L10 16 S E21-E36
L11 0 S L10 AND B/ELS NOT L2

FILE 'HCAPLUS' ENTERED AT 09:16:33 ON 30 OCT 2006

FILE 'REGISTRY' ENTERED AT 09:16:48 ON 30 OCT 2006

=> => fil reg

FILE 'REGISTRY' ENTERED AT 11:27:31 ON 30 OCT 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 American Chemical Society (ACS)Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.STRUCTURE FILE UPDATES: 29 OCT 2006 HIGHEST RN 911424-89-0
DICTIONARY FILE UPDATES: 29 OCT 2006 HIGHEST RN 911424-89-0

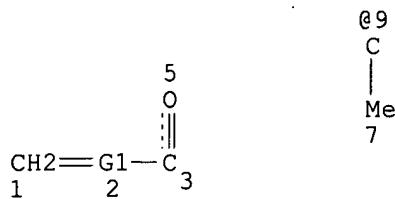
New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH June 30, 2006

Please note that search-term pricing does apply when
conducting SmartSELECT searches.REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document. For information
on property searching in REGISTRY, refer to:<http://www.cas.org/ONLINE/UG/regprops.html>

=> d sta que 18

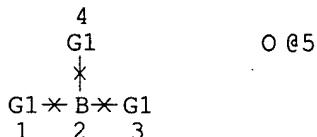
L1 387535 SEA FILE=REGISTRY ABB=ON PLU=ON B/ELS OR (?BORON? OR ?BORIC?
OR ?BORAT?)/CNS
L2 STR



VAR G1=CH/9
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 6

STEREO ATTRIBUTES: NONE
L4 1182 SEA FILE=REGISTRY SUB=L1 SSS FUL L2
L6 STR



VAR G1=5/X
NODE ATTRIBUTES:
NSPEC IS RC AT 5
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 5

STEREO ATTRIBUTES: NONE
L8 340 SEA FILE=REGISTRY SUB=L4 SSS FUL L6

100.0% PROCESSED 1180 ITERATIONS 340 ANSWERS
SEARCH TIME: 00.00.01

=> d his

(FILE 'HOME' ENTERED AT 10:22:35 ON 30 OCT 2006)
SET COST OFF

FILE 'REGISTRY' ENTERED AT 10:22:50 ON 30 OCT 2006
L1 387535 S B/ELS OR (?BORON? OR ?BORIC? OR ?BORAT?)/CNS
L2 STR
L3 50 S L2 SAM SUB=L1
L4 1182 S L2 FUL SUB=L1
SAV TEMP L4 LAURA717/A

```

L5      STR
L6      STR L5
L7      18 S L6 SAM SUB=L4
L8      340 S L6 FUL SUB=L4
        SAV TEMP L8 LAURA717A/A
L9      63 S BH303 AND L8
L10     25 S L9 AND 4/ELC.SUB
L11     23 S L10 NOT C6/ES
L12     19 S L11 NOT (C6H10O4 OR C10H18O4)
L13     4 S L11 NOT L12
L14     2 S L13 AND 2/NC
L15     2 S L13 NOT L14
L16     19 S L11 NOT L13
L17     17 S L16 NOT (57-55-6 OR 5919-74-4) /CRN
L18     4 S L10 NOT L16,L15
L19     19 S L15,L17
L20     38 S L9 NOT L10
L21     277 S L8 NOT L9
L22     101 S L21 AND 1/NC
L23     6 S L22 AND (C15H21BO9 OR C18H27BO9 OR C24H39BO12)
L24     9 S L22 AND C2H4O
        SEL RN 1 8 9
L25     6 S L24 NOT E16-E18
L26     18 S L19 NOT C14H24O4
L27     176 S L21 NOT L22
L28     56 S L27 NOT BF4
L29     30 S L23,L25,L26
        SAV TEMP L29 LAURA717B/A
L30     6 S 693782-27-3 OR 693782-28-4 OR 693782-29-5 OR 693782-30-8 OR 6
L31     24 S L29 NOT L30

```

FILE 'HCAOLD' ENTERED AT 11:24:32 ON 30 OCT 2006
L32 0 S L31

FILE 'HCAPLUS' ENTERED AT 11:24:34 ON 30 OCT 2006
L33 13 S L31
L34 10 S L33 AND (PY<=2003 OR PRY<=2003 OR AY<=2003)
L35 7 S L33 AND (OKUMURA? OR TAKEFUMI? OR NISHIMURA? OR SHIN? OR IWAY
L36 3 S L33 AND HITACHI?/PA,CS
L37 4 S L34 AND L35,L36
L38 10 S L34,L37
L39 3 S L33-L37 NOT L38

FILE 'USPATFULL' ENTERED AT 11:27:16 ON 30 OCT 2006
L40 2 S L31

FILE 'REGISTRY' ENTERED AT 11:27:31 ON 30 OCT 2006

=> fil uspatful
FILE 'USPATFULL' ENTERED AT 11:27:48 ON 30 OCT 2006
CA INDEXING COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)

FILE COVERS 1971 TO PATENT PUBLICATION DATE: 26 Oct 2006 (20061026/PD)
FILE LAST UPDATED: 26 Oct 2006 (20061026/ED)
HIGHEST GRANTED PATENT NUMBER: US7127745
HIGHEST APPLICATION PUBLICATION NUMBER: US2006242744
CA INDEXING IS CURRENT THROUGH 24 Oct 2006 (20061024/UPCA)
ISSUE CLASS FIELDS (/INCL) CURRENT THROUGH: 26 Oct 2006 (20061026/PD)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Jun 2006
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Jun 2006

=> d 140 bib abs hitstr tot

L40 ANSWER 1 OF 2 USPATFULL on STN
 AN 2004:335886 USPATFULL
 TI Process for producing boric ester compound, electrolyte for
 electrochemical device, and secondary battery
 IN Yokoyama, Shoichi, Kanagawa, JAPAN
 Yabe, Takeshi, Kanagawa, JAPAN
 PI US 2004266981 A1 20041230
 US 6998465 B2 20060214
 AI US 2004-489418 A1 20040312 (10)
 WO 2002-JP10049 20020927
 PRAI JP 2001-301122 20010928
 JP 2002-98060 20020329
 DT Utility
 FS APPLICATION
 LREP ANTONELLI, TERRY, STOUT & KRAUS, LLP, 1300 NORTH SEVENTEENTH STREET,
 SUITE 1800, ARLINGTON, VA, 22209-9889
 CLMN Number of Claims: 16
 ECL Exemplary Claim: 1
 DRWN No Drawings
 LN.CNT 1634

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A process for producing a boric acid ester compound which comprises
 esterifying a compound represented by the formula (1):

X--[O(AO).sub.n--H].sub.a (1)

wherein X represents a group independently selected from a residue of a
 compound having 1 to 6 hydroxyl groups, an acryloyl group and a
 methacryloyl group with a boron-containing compound represented by the
 formula (2):

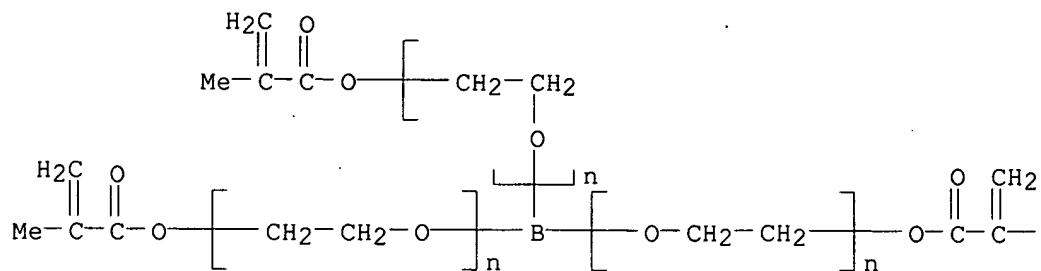
(RO).sub.3--B (2)

wherein R represents an alkyl group having 1 to 4 carbon atoms. The
 present invention can provide a boric acid ester compound which has a
 high ion conductivity, which is useful as a material for an
 electrochemical device, such as a secondary battery or a capacitor,
 having excellent safety and which is low in water and impurity contents,
 a polymer electrolyte containing the boric acid ester compound, and a
 secondary battery using the polymer electrolyte.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

IT 512206-26-7P 512206-27-8P 512206-28-9P
 512206-30-3P 512206-31-4P 512206-32-5P
 512776-99-7P 512777-00-3P
 (manufacture of borate ester compds. for secondary battery electrolytes)
 RN 512206-26-7 USPATFULL
 CN Poly(oxy-1,2-ethanediyl), $\alpha,\alpha',\alpha''-$
 borylidynetris[ω -[(2-methyl-1-oxo-2-propenyl)oxy]- (9CI) (CA
 INDEX NAME)

PAGE 1-A

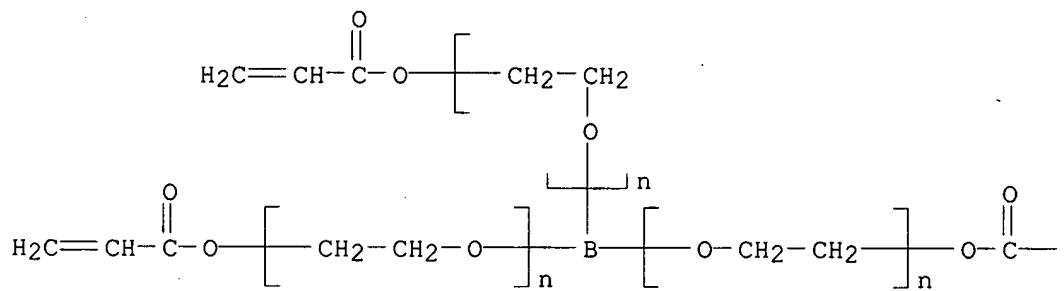


PAGE 1-B

— Me

RN 512206-27-8 USPATFULL
 CN Poly(oxy-1,2-ethanediyl), $\alpha, \alpha', \alpha''$ -borylidynetris[ω -[(1-oxo-2-propenyl)oxy]- (9CI) (CA INDEX NAME)

PAGE 1-A



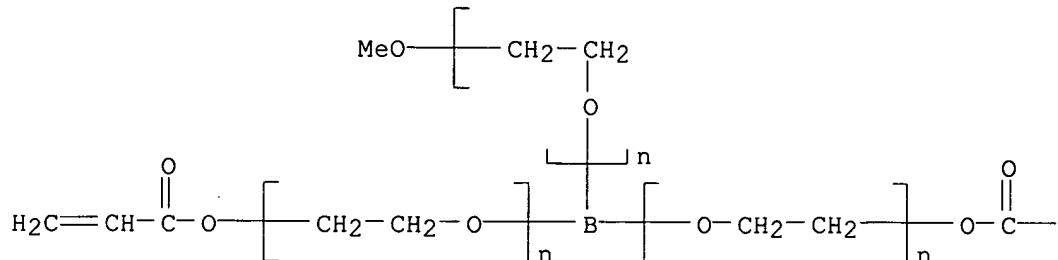
PAGE 1-B

— CH=CH₂

RN 512206-28-9 USPATFULL

CN Poly(oxy-1,2-ethanediyl), ω -methoxy- ω' , ω'' -bis[(1-oxo-2-propenyl)oxy]- α , α' , α'' -borylidynetris- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

 ---CH=CH_2

RN 512206-30-3 USPATFULL

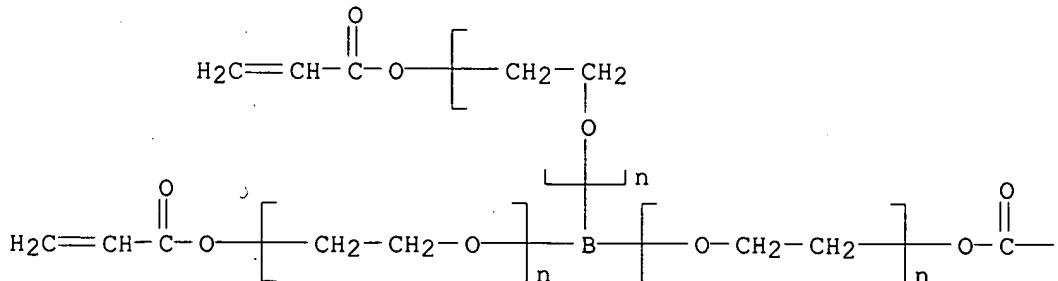
CN Poly(oxy-1,2-ethanediyl), α , α' , α'' -borylidynetris[ω -[(1-oxo-2-propenyl)oxy]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 512206-27-8

CMF (C₂ H₄ O)_n (C₂ H₄ O)_n (C₂ H₄ O)_n C₉ H₉ B O₆
CCI PMS

PAGE 1-A



PAGE 1-B

— CH=CH₂

RN 512206-31-4 USPATFULL

CN Poly(oxy-1,2-ethanediyl), ω -methoxy- ω' , ω'' -bis[(1-oxo-2-propenyl)oxy]- α , α' , α'' -borylidynetris-, homopolymer
(9CI) (CA INDEX NAME)

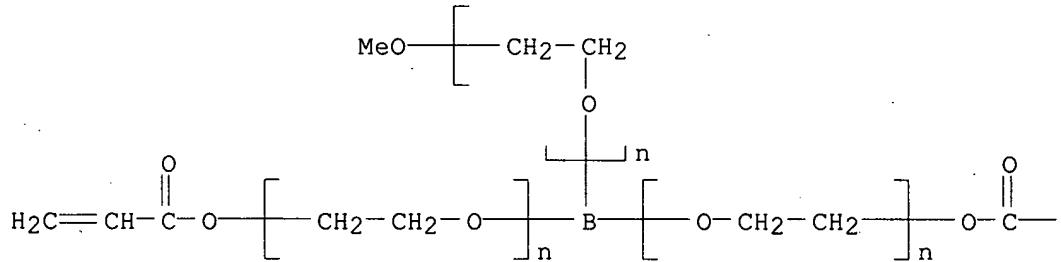
CM 1

CRN 512206-28-9

CMF (C₂ H₄ O)_n (C₂ H₄ O)_n (C₂ H₄ O)_n C₇ H₉ B O₅

CCI PMS

PAGE 1-A



PAGE 1-B

— CH=CH₂

RN 512206-32-5 USPATFULL

CN Poly(oxy-1,2-ethanediyl), α , α' , α'' -borylidynetris[ω -[(2-methyl-1-oxo-2-propenyl)oxy]-, homopolymer
(9CI) (CA INDEX NAME)

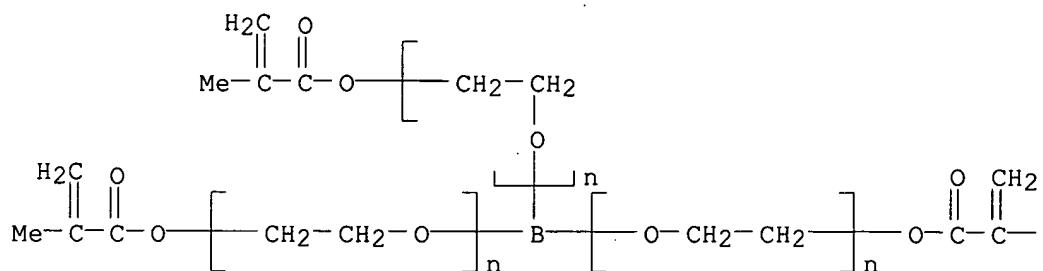
CM 1

CRN 512206-26-7

CMF (C₂ H₄ O)_n (C₂ H₄ O)_n (C₂ H₄ O)_n C₁₂ H₁₅ B O₆

CCI PMS

PAGE 1-A



PAGE 1-B

— Me

RN 512776-99-7 USPATFULL

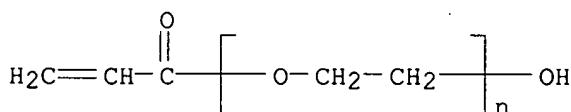
CN Oxirane, methyl-, polymer with oxirane, monomethyl ether, ester with boric acid (H3BO3) ester with α -(1-oxo-2-propenyl)- ω -hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 26403-58-7

CMF (C2 H4 O)n C3 H4 O2

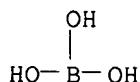
CCI PMS



CM 2

CRN 10043-35-3

CMF B H3 O3



CM 3

CRN 9063-06-3
 CMF (C₃ H₆ O . C₂ H₄ O)x . C H₄ O
 CDES 8:GD, ETHER

CM 4

CRN 67-56-1
 CMF C H₄ O

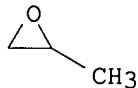
H₃C—OH

CM 5

CRN 9003-11-6
 CMF (C₃ H₆ O . C₂ H₄ O)x
 CCI PMS

CM 6

CRN 75-56-9
 CMF C₃ H₆ O



CM 7

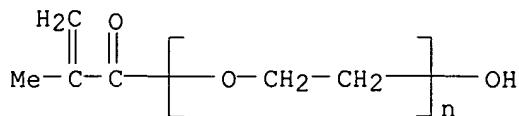
CRN 75-21-8
 CMF C₂ H₄ O



RN 512777-00-3 USPATFULL
 CN Poly(oxy-1,2-ethanediyl), α -(2-methyl-1-oxo-2-propenyl)- ω -hydroxy-, ester with boric acid (H₃BO₃) ester with α -hydro- ω -hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

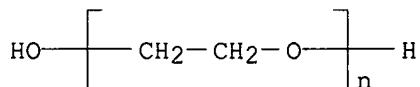
CM 1

CRN 25736-86-1
 CMF (C₂ H₄ O)_n C₄ H₆ O₂
 CCI PMS



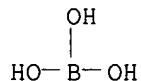
CM 2

CRN 25322-68-3
CMF (C2 H4 O)n H2 O
CCI PMS



CM 3

CRN 10043-35-3
CMF B H3 03



L40 ANSWER 2 OF 2 USPATFULL on STN
AN 2004:323217 USPATFULL
TI Electrolyte for secondary battery and secondary battery
IN Yokoyama, Shoichi, Yokahama, JAPAN
Wakihara, Masataka, Yokohama, JAPAN
Kobayashi, Takao, Miura-gun, JAPAN
Suwa, Kentaro, Oota-ku, JAPAN
PA NOF Corporation, Tokyo, JAPAN (non-U.S. corporation)
PI US 6833220 B1 20041221
WO 2001039316 20010531
AI US 2002-130952 20020524 (10)
WO 2000-JP8254 20001122
20020524 PCT 371 date
PRAI JP 1999-332586 19991124
JP 2000-87754 20000328
DT Utility
FS GRANTED
EXNAM Primary Examiner: Ryan, Patrick; Assistant Examiner: Dove, Tracy
LREP Sughrue Mion, PLLC
CLMN Number of Claims: 32
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 1823
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides an electrolyte for secondary battery having high ionic conductivity and an excellent safety and a secondary battery having an excellent cycle life performance comprising such an

electrolyte.

In other words, the invention lies in an electrolyte for secondary battery comprising an ionic compound and an organic polymer compound, wherein the organic polymer compound comprises a compound represented by the general formula (1) or a boric acid ester compound obtained by the esterification of the compound represented by the general formula (1) with boric acid or boric anhydride:

Z.sup.1--[(A.sup.10).sub.1--R.sup.1].sub.a (1)

wherein Z.sup.1 represents a residue of compound having from 1 to 6 hydroxyl groups; A.sup.10 represents one or a mixture of two or more of C.sub.2-C.sub.4 oxyalkylene groups; R.sup.1 represents a group selected from the group consisting of cyanoethyl group, C.sub.1-C.sub.12 hydrocarbon group and hydrogen atom; 1 represents an integer of from 0 to 600; and the suffix a represents an integer of from 1 to 6, with the proviso that 1a ranges from 0 to 600, and a secondary battery comprising the electrolyte for secondary battery,

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

IT 340814-65-5 340814-66-6 340814-67-7

(compns. of oxyalkylene polymer electrolytes for secondary lithium batteries)

RN 340814-65-5 USPATFULL

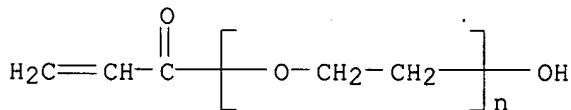
CN Poly(oxy-1,2-ethanediyl), α -(1-oxo-2-propenyl)- ω -hydroxy-, ester with boric acid (H₃BO₃) ester with α -methyl- ω -hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 26403-58-7

CMF (C₂ H₄ O)_n C₃ H₄ O₂

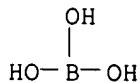
CCI PMS



CM 2

CRN 10043-35-3

CMF B H₃ O₃

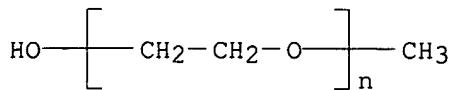


CM 3

CRN 9004-74-4

CMF (C₂ H₄ O)_n C H₄ O

CCI PMS



RN 340814-66-6 USPATFULL

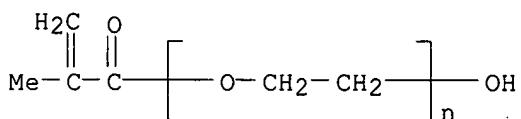
CN Poly(oxy-1,2-ethanediyl), α -(2-methyl-1-oxo-2-propenyl)- ω -hydroxy-, ester with boric acid (H3BO3) (9CI) (CA INDEX NAME)

CM 1

CRN 25736-86-1

CMF (C2 H4 O)n C4 H6 O2

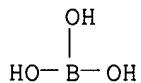
CCI PMS



CM 2

CRN 10043-35-3

CMF B H3 O3



RN 340814-67-7 USPATFULL

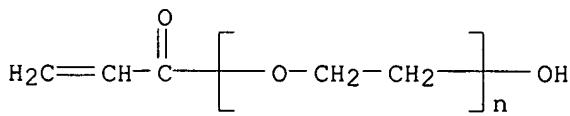
CN Poly(oxy-1,2-ethanediyl), α -(1-oxo-2-propenyl)- ω -hydroxy-, ester with boric acid (H3BO3) (9CI) (CA INDEX NAME)

CM 1

CRN 26403-58-7

CMF (C2 H4 O)n C3 H4 O2

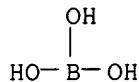
CCI PMS



CM 2

CRN 10043-35-3

CMF B H3 O3



=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 11:28:00 ON 30 OCT 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 30 Oct 2006 VOL 145 ISS 19
FILE LAST UPDATED: 29 Oct 2006 (20061029/ED)

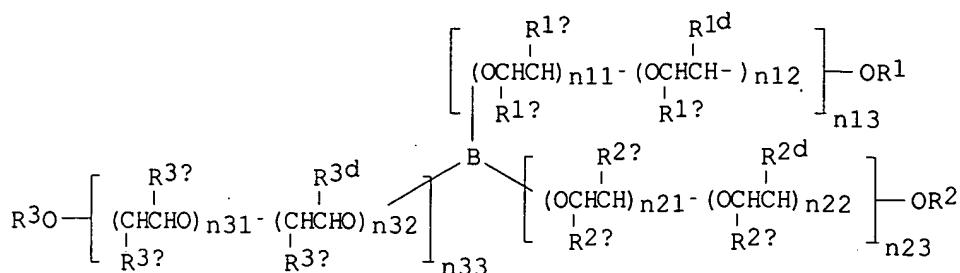
New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d 138 bib abs hitstr retable tot

L38 ANSWER 1 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:694134 HCAPLUS
DN 139:232985
TI Polymer solid electrolyte and polymer solid electrolyte battery
IN Bando, Toshinori; Kuratomi, Junichi; Ono, Tetsuo
PA Yuasa Corporation, Japan
SO Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2003249266	A2	20030905	JP 2002-48481	20020225 <--
PRAI JP 2002-48481		20020225	<--	
OS MARPAT 139:232985				
GI				



I

AB The electrolyte contains an electrolyte salt and a polymer; where the polymer has repeating structure units derived from a compound I [R1 = C>1 nonpolymerizable functional group; R2, R3 = polymerizable functional group; R1a, R1b, R1c, R1d, R2a, R2b, R2c, R2d, R3a, R3b, R3c, R3d = H or C1-3 alkyl group; n11, n12, n13, n21, n22, n23, n31, n32, n33 = integer 0-100; (n21 + n22 + n23) .++. 0; (n31 + n32 + n33) .++. 0; n13(n11+n12) > n23(n21+n22) > n33(n31+n32)]. The battery has the above electrolyte, a cathode containing a transition metal oxide based active mass and an anode containing a Li alloy, Li, or Li-intercalating substance based anode material.

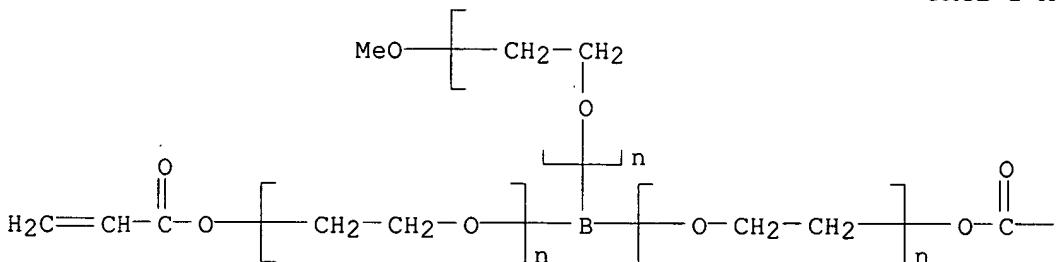
IT 512206-28-9

RL: DEV (Device component use); USES (Uses)
(solid electrolytes containing electrolyte salts and polymers for secondary lithium batteries)

RN 512206-28-9 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), ω -methoxy- ω' , ω'' -bis[(1-oxo-2-propenyl)oxy]- α , α' , α'' -borylidynetris- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

— CH=CH₂

L38 ANSWER 2 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 2003:301090 HCAPLUS
 DN 138:324031
 TI Manufacture of borate ester compound, electrolyte for electrochemical
 device, and secondary battery
 IN Yokoyama, Shoichi; Yabe, Takeshi
 PA NOF Corporation, Japan
 SO PCT Int. Appl., 55 pp.
 CODEN: PIIXD2
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003031453	A1	20030417	WO 2002-JP10049	20020927 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	JP 2003201344	A2	20030718	JP 2002-282068	20020927 <--
	EP 1431300	A1	20040623	EP 2002-800707	20020927 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
	CN 1596260	A	20050316	CN 2002-823808	20020927 <--
	JP 2004002342	A2	20040108	JP 2003-82497	20030325 <--
	US 2004266981	A1	20041230	US 2004-489418	20040312 <--
	US 6998465	B2	20060214		
PRAI	JP 2001-301122	A	20010928	<--	
	JP 2002-98060	A	20020329	<--	
	WO 2002-JP10049	W	20020927	<--	

AB The ester compound is prepared by esterification of a compound I $X[O(AO)nH]a$ (X = residue of a compound having 1-6 OH groups; AO = C2-4 oxyalkylene group; n = 0-600; a = 1-6) with a B containing compound II $(RO)3B$ (R = C1-4 alkyl group).

The battery uses an electrolyte containing the borate ester compound or its copolymer.

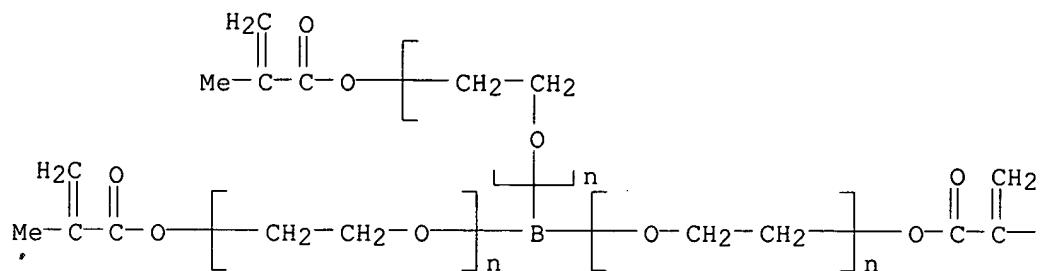
IT 512206-26-7P 512206-27-8P 512206-28-9P
 512206-30-3P 512206-31-4P 512206-32-5P
 512776-99-7P 512777-00-3P

RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
 (manufacture of borate ester compds. for secondary battery electrolytes)

RN 512206-26-7 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), $\alpha,\alpha',\alpha''-$
 borylidynetris[ω -[(2-methyl-1-oxo-2-propenyl)oxy]- (9CI) (CA INDEX
 NAME)

PAGE 1-A

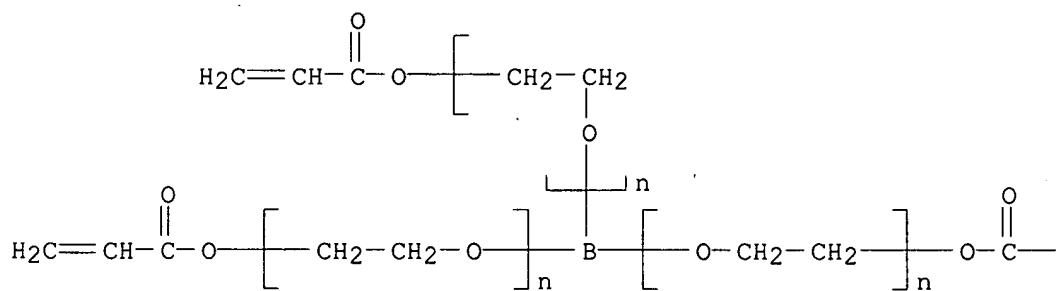


PAGE 1-B

— Me

RN 512206-27-8 HCAPLUS
 CN Poly(oxy-1,2-ethanediyl), $\alpha, \alpha', \alpha''$ -borylidynetris[ω -[(1-oxo-2-propenyl)oxy]- (9CI) (CA INDEX NAME)

PAGE 1-A



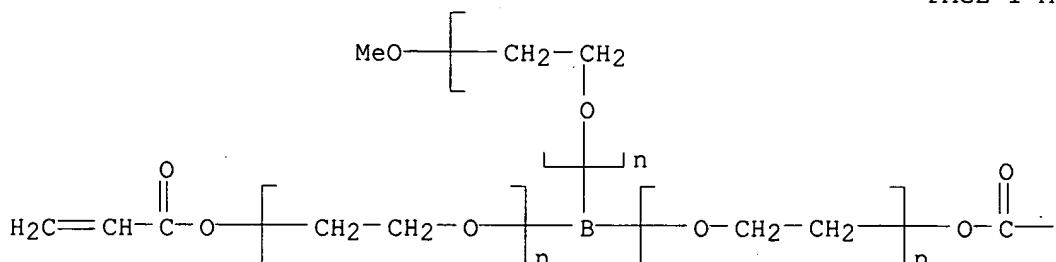
PAGE 1-B

— CH=CH₂

RN 512206-28-9 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), ω -methoxy- ω' , ω'' -bis[(1-oxo-2-propenyl)oxy]- α , α' , α'' -borylidynetris- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

—CH=CH₂

RN 512206-30-3 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α , α' , α'' -borylidynetris[ω -[(1-oxo-2-propenyl)oxy]-, homopolymer (9CI) (CA INDEX NAME)

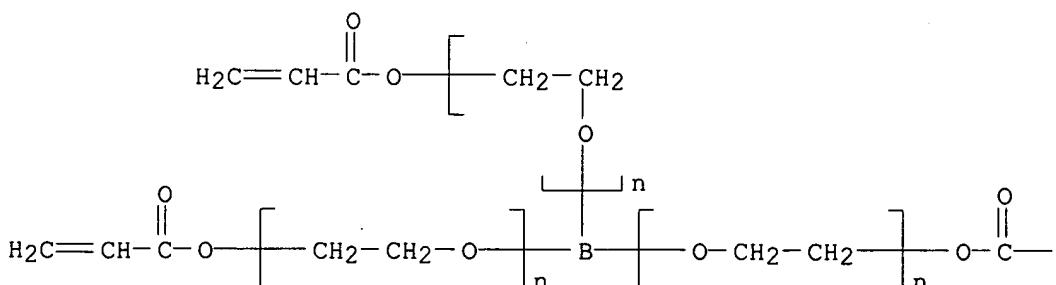
CM 1

CRN 512206-27-8

CMF (C₂ H₄ O)_n (C₂ H₄ O)_n (C₂ H₄ O)_n C₉ H₉ B O₆

CCI PMS

PAGE 1-A



PAGE 1-B

— CH=CH₂

RN 512206-31-4 HCPLUS

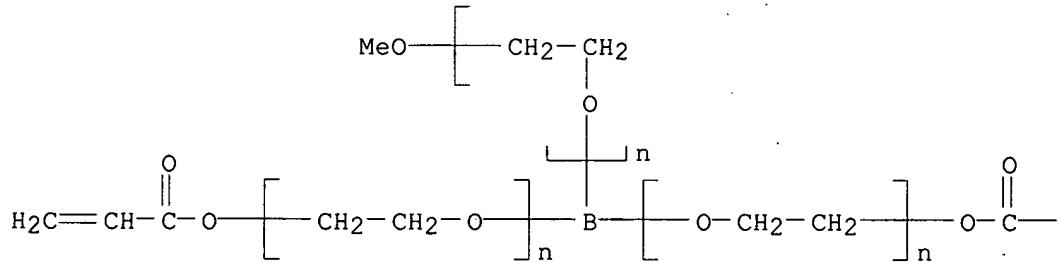
CN Poly(oxy-1,2-ethanediyl), ω -methoxy- ω' , ω'' -bis[(1-oxo-2-propenyl)oxy]- α , α' , α'' -borylidynetris-, homopolymer
(9CI) (CA INDEX NAME)

CM 1

CRN 512206-28-9

CMF (C₂ H₄ O)_n (C₂ H₄ O)_n (C₂ H₄ O)_n C₇ H₉ B O₅
CCI PMS

PAGE 1-A



PAGE 1-B

— CH=CH₂

RN 512206-32-5 HCPLUS

CN Poly(oxy-1,2-ethanediyl), α , α' , α'' -borylidynetris[ω -[(2-methyl-1-oxo-2-propenyl)oxy]-, homopolymer
(9CI) (CA INDEX NAME)

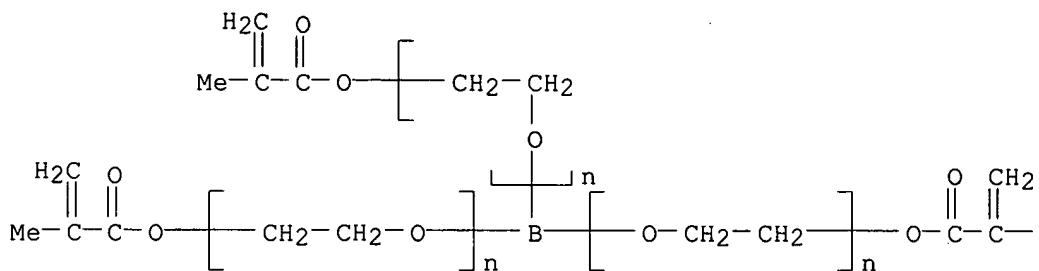
CM 1

CRN 512206-26-7

CMF (C₂ H₄ O)_n (C₂ H₄ O)_n (C₂ H₄ O)_n C₁₂ H₁₅ B O₆

CCI PMS

PAGE 1-A



PAGE 1-B

— Me

RN 512776-99-7 HCAPLUS

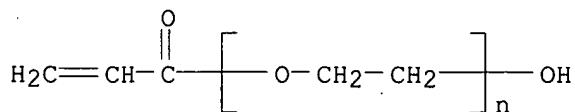
CN Oxirane, methyl-, polymer with oxirane, monomethyl ether, ester with boric acid (H3BO3) ester with α -(1-oxo-2-propenyl)- ω -hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 26403-58-7

CMF (C2 H4 O)n C3 H4 O2

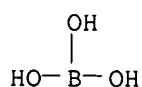
CCI PMS



CM 2

CRN 10043-35-3

CMF B H3 O3



CM 3

CRN 9063-06-3
 CMF (C₃ H₆ O . C₂ H₄ O)x . C H₄ O

CM 4

CRN 67-56-1
 CMF C H₄ O

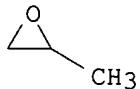
H₃C—OH

CM 5

CRN 9003-11-6
 CMF (C₃ H₆ O . C₂ H₄ O)x
 CCI PMS

CM 6

CRN 75-56-9
 CMF C₃ H₆ O



CM 7

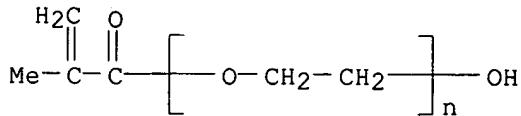
CRN 75-21-8
 CMF C₂ H₄ O



RN 512777-00-3 HCAPLUS
 CN Poly(oxy-1,2-ethanediyl), α -(2-methyl-1-oxo-2-propenyl)- ω -hydroxy-, ester with boric acid (H₃BO₃) ester with α -hydro- ω -hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

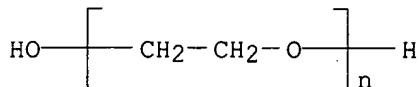
CM 1

CRN 25736-86-1
 CMF (C₂ H₄ O)_n C₄ H₆ O₂
 CCI PMS



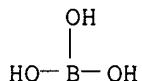
CM 2

CRN 25322-68-3
 CMF (C₂ H₄ O)_n H₂ O
 CCI PMS



CM 3

CRN 10043-35-3
 CMF B H₃ O₃



RETABLE

Referenced Author (RAU)	Year (R PY)	VOL (R VL)	PG (R PG)	Referenced Work (R WK)	Referenced File
Dai - Ichi Kogyo Seiyak	2001			WO 0118094 A1	HCAPLUS
Dai - Ichi Kogyo Seiyak	2001			EP 1160268 A1	HCAPLUS
Dai - Ichi Kogyo Seiyak	2001			JP 200172875 A	
Dai - Ichi Kogyo Seiyak	2001			JP 200172876 A	
Dai - Ichi Kogyo Seiyak	2001			JP 200172877 A	
Mine Safety Appliances	1972			JP 47-29323 A	
Nof Corp	2001			WO 0139316 A1	HCAPLUS
Nof Corp	2001			EP 1258938 A1	HCAPLUS
Nof Corp	2001			JP 2001155771 A	HCAPLUS
Nof Corp	2001			JP 2001273925 A	HCAPLUS
Nof Corp	2002			JP 2002158039 A	HCAPLUS
Nof Corp	2002			JP 2002348323 A	HCAPLUS

L38 ANSWER 3 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2002:918258 HCAPLUS

DN 138:14206

TI Polymerizable boric acid ester compounds and their manufacture and use as polymer polyelectrolytes for electric devices

IN Yokoyama, Akihito; Yabe, Takeshi

PA NOF Corporation, Japan

SO Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2002348323	A2	20021204	JP 2001-153804	20010523 <--
PRAI JP 2001-153804		20010523	<--	

AB The compds. useful for secondary batteries and capacitors, are the esters

of a polyoxyalkylene (meth)acrylate macromer with boric acid or its anhydride and have residual Cl content of <100 ppm. Thus, ethoxylating 2-hydroxyethyl methacrylate with ethylene oxide using BF_3 -di-Et ether complex gave a macromer 284 g of which was heated with 11.6 g boric anhydride at 80° in the presence of dry air for 12 h to give a macromer borate ester (I) with Cl content <1 ppm. Polymerizing 4.00 g the I in the presence of 2.29 g LiTFSI gave a polymer electrolyte with conductivity 2.62×10^{-3} and 1.33×10^{-1} S/m at 25 and 80°, resp.

IT 477762-06-4P

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(electrolytes; manufacture of macromer borate esters for polymer electrolytes for elec. devices)

RN 477762-06-4 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α -(2-methyl-1-oxo-2-propenyl)- ω -hydroxy-, ester with boric acid (H_3BO_3), homopolymer. (9CI) (CA INDEX NAME)

CM 1

CRN 340814-66-6

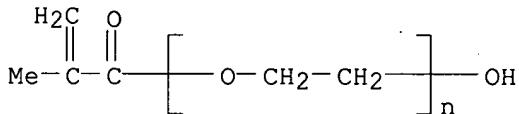
CMF $(\text{C}_2\text{H}_4\text{O})_n\text{C}_4\text{H}_6\text{O}_2 \cdot x\text{B}_3\text{H}_3\text{O}_3$

CM 2

CRN 25736-86-1

CMF $(\text{C}_2\text{H}_4\text{O})_n\text{C}_4\text{H}_6\text{O}_2$

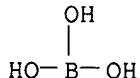
CCI PMS



CM 3

CRN 10043-35-3

CMF B H3 O3



IT 340814-66-6P 340814-67-7P 477762-05-3P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(macromer; manufacture of macromer borate esters for polymer electrolytes for elec. devices)

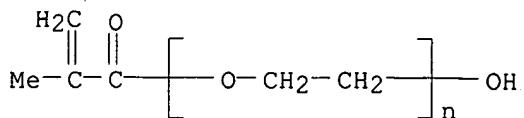
RN 340814-66-6 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α -(2-methyl-1-oxo-2-propenyl)- ω -hydroxy-, ester with boric acid (H_3BO_3) (9CI) (CA INDEX NAME)

CM 1

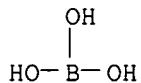
CRN 25736-86-1

CMF (C₂ H₄ O)_n C₄ H₆ O₂
 CCI PMS



CM 2

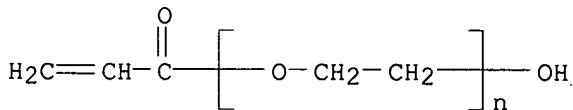
CRN 10043-35-3
 CMF B H₃ O₃



RN 340814-67-7 HCAPLUS
 CN Poly(oxy-1,2-ethanediyl), α -(1-oxo-2-propenyl)- ω -hydroxy-,
 ester with boric acid (H₃BO₃) (9CI) (CA INDEX NAME)

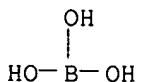
CM 1

CRN 26403-58-7
 CMF (C₂ H₄ O)_n C₃ H₄ O₂
 CCI PMS



CM 2

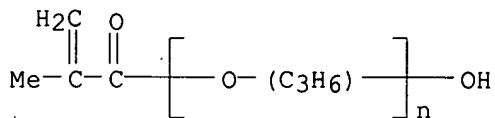
CRN 10043-35-3
 CMF B H₃ O₃



RN 477762-05-3 HCAPLUS
 CN Poly[oxy(methyl-1,2-ethanediyl)], α -(2-methyl-1-oxo-2-propenyl)- ω -hydroxy-, ester with boric acid (H₃BO₃) (9CI) (CA INDEX NAME)

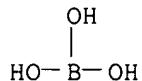
CM 1

CRN 39420-45-6
 CMF (C₃ H₆ O)_n C₄ H₆ O₂
 CCI IDS, PMS



CM 2

CRN 10043-35-3
CMF B H3 O3



IT 477594-01-7P 477762-07-5P 477762-08-6P

477762-49-5P

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(manufacture of macromer borate esters for polymer electrolytes for elec. devices)

RN 477594-01-7 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α -(1-oxo-2-propenyl)- ω -hydroxy-,

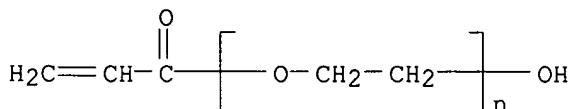
polymer with α -(1-oxo-2-propenyl)- ω -hydroxypoly(oxy-1,2-ethanediyl) ester with boric acid (H₃BO₃) (9CI) (CA INDEX

CM 1

CRN 26403-58-7

CMF (C₂ H₄ O)_n C₃ H₄ O₂

CCI PMS



CM 2

CRN 340814-67-7

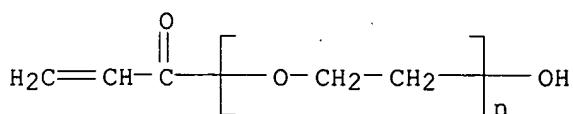
CMF (C₂ H₄ O)_n C₃ H₄ O₂ . x B H₃ O₃

CM 3

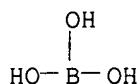
CRN 26403-58-7

CMF (C₂ H₄ O)_n C₃ H₄ O₂

CCI PMS



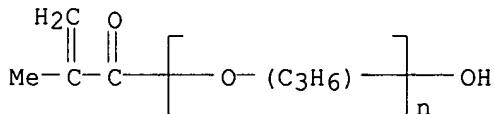
CM 4

CRN 10043-35-3
CMF B H3 O3RN 477762-07-5 HCPLUS
CN Poly[oxy(methyl-1,2-ethanediyl)], α -(2-methyl-1-oxo-2-propenyl)- ω -hydroxy-, ester with boric acid (H3BO3), homopolymer (9CI) (CA INDEX NAME)

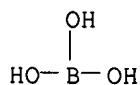
CM 1

CRN 477762-05-3
CMF (C3 H6 O)n C4 H6 O2 . x B H3 O3

CM 2

CRN 39420-45-6
CMF (C3 H6 O)n C4 H6 O2
CCI IDS, PMS

CM 3

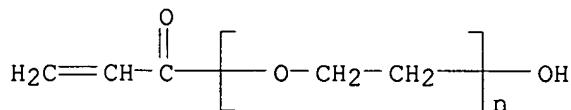
CRN 10043-35-3
CMF B H3 O3RN 477762-08-6 HCPLUS
CN Poly(oxy-1,2-ethanediyl), α -(1-oxo-2-propenyl)- ω -hydroxy-, ester with boric acid (H3BO3), homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 340814-67-7
 CMF (C₂ H₄ O)_n C₃ H₄ O₂ . x B H₃ O₃

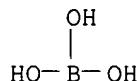
CM 2

CRN 26403-58-7
 CMF (C₂ H₄ O)_n C₃ H₄ O₂
 CCI PMS



CM 3

CRN 10043-35-3
 CMF B H₃ O₃



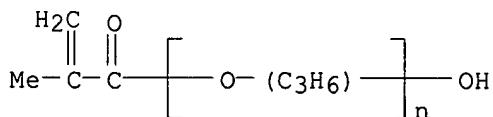
RN 477762-49-5 HCAPLUS
 CN Poly[oxy(methyl-1,2-ethanediyl)], α -(2-methyl-1-oxo-2-propenyl)- ω -hydroxy-, ester with boric acid (H₃BO₃), polymer with α -(1-oxo-2-propenyl)- ω -hydroxypoly(oxy-1,2-ethanediyl) ester with boric acid (H₃BO₃) (9CI) (CA INDEX NAME)

CM 1

CRN 477762-05-3
 CMF (C₃ H₆ O)_n C₄ H₆ O₂ . x B H₃ O₃

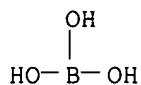
CM 2

CRN 39420-45-6
 CMF (C₃ H₆ O)_n C₄ H₆ O₂
 CCI IDS, PMS



CM 3

CRN 10043-35-3
 CMF B H₃ O₃

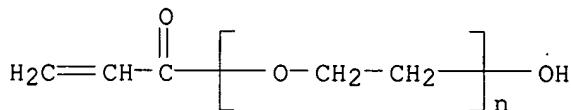


CM 4

CRN 340814-67-7
 CMF (C₂ H₄ O)_n C₃ H₄ O₂ . x B H₃ O₃

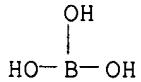
CM 5

CRN 26403-58-7
 CMF (C₂ H₄ O)_n C₃ H₄ O₂
 CCI PMS



CM 6

CRN 10043-35-3
 CMF B H₃ O₃



L38 ANSWER 4 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 2002:407259 HCAPLUS

DN 137:8609

TI Secondary battery electrolyte and the battery

IN Yokoyama, Akihito; Wakihara, Masataka

PA NOF Corporation, Japan

SO Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002158039	A2	20020531	JP 2000-354499	20001121 <--
PRAI JP 2000-354499		20001121 <--		
AB	The electrolyte contains an ionic compound and an organic polymer Z1[(A ₁ O) ₁ R ₁] _a [Z1 = residue of a compound having 1-4 OH groups; A ₁ = (different) C ₂ -4 oxyalkylene groups; 1 = 0-150; a = 1-4; 1+a = 0-300; R ₁ = H, cyanoethyl group, or R ₃ CH:CR ₃ CO-; and R ₂ and R ₃ = H or Me] or borate ester of the polymer.			
IT	340814-65-5 340814-66-6			
	RL: DEV (Device component use); USES (Uses)			

(compns. of oxyalkylene polymers for electrolytes in secondary lithium batteries)

RN 340814-65-5 HCAPLUS

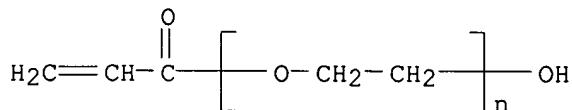
CN Poly(oxy-1,2-ethanediyl), α -(1-oxo-2-propenyl)- ω -hydroxy-, ester with boric acid (H₃BO₃) ester with α -methyl- ω -hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 26403-58-7

CMF (C₂ H₄ O)_n C₃ H₄ O₂

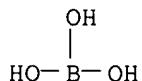
CCI PMS



CM 2

CRN 10043-35-3

CMF B H₃ O₃

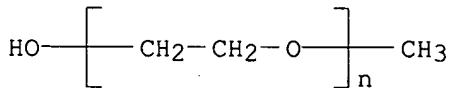


CM 3

CRN 9004-74-4

CMF (C₂ H₄ O)_n C H₄ O

CCI PMS



RN 340814-66-6 HCAPLUS

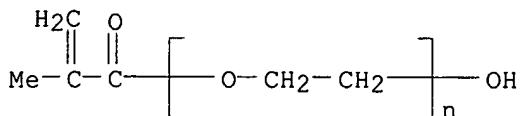
CN Poly(oxy-1,2-ethanediyl), α -(2-methyl-1-oxo-2-propenyl)- ω -hydroxy-, ester with boric acid (H₃BO₃) (9CI) (CA INDEX NAME)

CM 1

CRN 25736-86-1

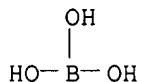
CMF (C₂ H₄ O)_n C₄ H₆ O₂

CCI PMS



CM 2

CRN 10043-35-3
CMF B H3 O3



L38 ANSWER 5 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:397251 HCAPLUS
DN 135:7801
TI Secondary battery electrolytes and the batteries
IN Yokoyama, Shoichi; Wakihara, Masataka; Kobayashi, Takao; Suwa, Kentaro
PA Nof Corporation, Japan
SO PCT Int. Appl., 53 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2001039316	A1	20010531	WO 2000-JP8254	20001122 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CZ, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
JP 2001155771	A2	20010608	JP 1999-332586	19991124 <--
JP 2001273925	A2	20011005	JP 2000-87754	20000328 <--
CA 2392543	AA	20010531	CA 2000-2392543	20001122 <--
AU 2001015495	A5	20010604	AU 2001-15495	20001122 <--
EP 1258938	A1	20021120	EP 2000-977877	20001122 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
US 6833220	B1	20041221	US 2002-130952	20020524 <--
PRAI JP 1999-332586	A	19991124 <--		
JP 2000-87754	A	20000328 <--		

AB The electrolytes contain a n ionic compound and a polymer, where the polymer is Z1[(AlO)lR1]a (R1 = cyanoethyl, C1-12 hydrocarbon group, or H; Z1 = a residue of a compound having 1-6 OH groups; AlO is \geq 1 C2-4 oxyalkylene group; l = 0-600, a = 1-6, and a+l = 0-600), or its borate ester or Z2[(AO2)mR2]b (R2 = H, cyanoethyl or R3CH:CR4CO; Z2 = OH

or residue of a compound having 1-4 OH groups; A20 is ≥ 1 C2-4 oxyalkylene group; R3 and R4 = H or Me; m = 0-150, b = 1-4, and m+b = 0-300).

IT 340814-65-5 340814-66-6 340814-67-7

RL: DEV (Device component use); USES (Uses)

(compns. of oxyalkylene polymer electrolytes for secondary lithium batteries)

RN 340814-65-5 HCAPLUS

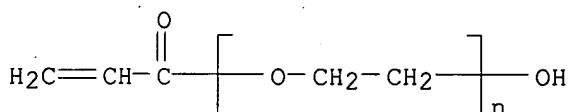
CN Poly(oxy-1,2-ethanediyl), α -(1-oxo-2-propenyl)- ω -hydroxy-, ester with boric acid (H3BO3) ester with α -methyl- ω -hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 26403-58-7

CMF (C2 H4 O)n C3 H4 O2

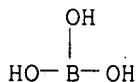
CCI PMS



CM 2

CRN 10043-35-3

CMF B H3 O3

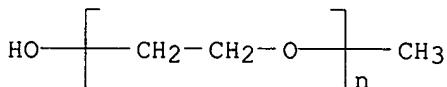


CM 3

CRN 9004-74-4

CMF (C2 H4 O)n C H4 O

CCI PMS



RN 340814-66-6 HCAPLUS

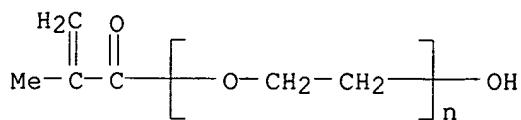
CN Poly(oxy-1,2-ethanediyl), α -(2-methyl-1-oxo-2-propenyl)- ω -hydroxy-, ester with boric acid (H3BO3) (9CI) (CA INDEX NAME)

CM 1

CRN 25736-86-1

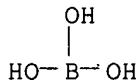
CMF (C2 H4 O)n C4 H6 O2

CCI PMS



CM 2

CRN 10043-35-3
CMF B H3 03

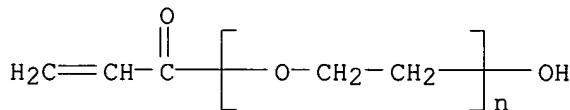


RN 340814-67-7 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α -(1-oxo-2-propenyl)- ω -hydroxy-,
ester with boric acid (H3BO3) (9CI) (CA INDEX NAME)

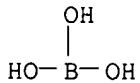
CM 1

CRN 26403-58-7
CMF (C2 H4 O)n C3 H4 O2
CCI PMS



CM 2

CRN 10043-35-3
CMF B H3 O3



RETABLE

Referenced Author (RAU)	Year (R PY)	VOL (R VL)	PG (R PG)	Referenced Work (R WK)	Referenced File
Mitsubishi Chemical Cor	1999			JP 11219726 A	HCAPLUS
Nippon Oil Co Ltd	1992			US 5326657 A	HCAPLUS
Nippon Oil Company Ltd	1993			JP 536305 A	
Toshiba Battery Co Ltd	1993			JP 05151992 A	HCAPLUS
Ube Industries Ltd	1993			JP 05315007 A	HCAPLUS

L38 ANSWER 6 OF 10 HCPLUS COPYRIGHT 2006 ACS on STN
AN 1987:85925 HCPLUS

DN 106:85925
TI Neutron-shielding transparent resin
IN Ida, Kozo; Azegami, Kyotaka
PA Mitsubishi Rayon Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
Coden: JKXXAF

DT Patent

LA Japanese

BR 500
FAN.CNT 1

PI JP 61215610 A2 19860925 JP 1985-56108 19850322 <--

PRAI JP 1985-56108 19850322 <--
AB Hydroxyalkyl or glycidyl (meth)acrylates are treated with H₃BO₃, its esters, or BO_x and polymerized to give the title resins, containing 0.2-6% B. Thus, 3 mol 2-hydroxyethyl methacrylate and 1 mol H₃BO₃ were esterified 3 h at 80° and polymerized to a polymer with neutron shielding 1200% of that of poly(Me methacrylate).

that of 1911
IT 106946-68-3

100040 00 5

BL: USES (Uses)

(neutron shields, manufacture of transparent)

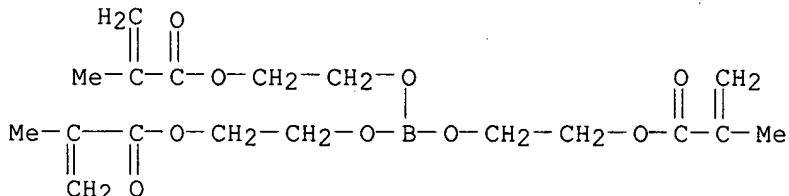
RN 106946-68-3 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, borylidynetris(oxy-2,1-ethanediyl) ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 42175-72-4

CMF C18 H27 B 09

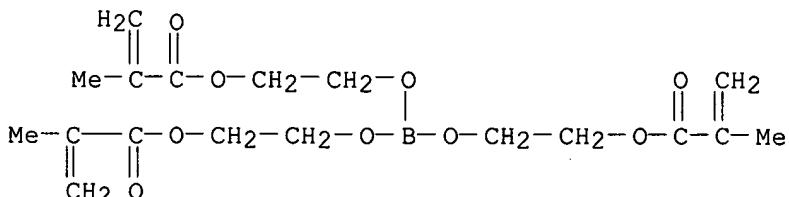


IT 42175-72-4P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

RN 42175-72-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, borylidynetris(oxy-2,1-ethanediyl) ester
(9CI) (CA INDEX NAME)



L38 ANSWER 7 OF 10 HCPLUS COPYRIGHT 2006 ACS on STN
AN 1981:182444 HCPLUS

DN 94:182444

TI Neutron shielding materials

PA Kyowa Gas Chemical Industry Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 55144597	A2	19801111	JP 1979-53032	19790427 <--
JP 59017398	B4	19840420		

PRAI JP 1979-53032

A 19790427 <--

AB Mixts. composed of (1) ≥ 1 monomer selected from alkyl(C1-4) methacrylates and styrene and (2) boric acid ester C3-16 polyols are copolymd. to give n shielding materials. The composition is formulated such that polyol/B ratio and B content in the shield are 0.6-4.0 and 1-6 weight%, resp. Thus, H3BO3 61.8, 1,2-propanediol 152, and Me methacrylate 250 parts were heated at 60°, then excess Me methacrylate and the product H2O were removed by evaporation to give an ester solution. Then, Me methacrylate 2, ethylene glycol dimethacrylate 2 parts, and a polymerization initiator were added to the ester solution, and copolymn. was carried out to give a n shielding material having good optical transparency, good mech. strength, and good n shielding efficiency.

IT 77466-47-8

RL: PROC (Process)

(polymer composition containing, for neutron shield)

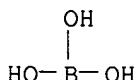
RN 77466-47-8 HCPLUS

CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, homopolymer, ester with boric acid (H3BO3) (9CI) (CA INDEX NAME)

CM 1

CRN 10043-35-3

CMF B H3 O3



CM 2

CRN 25249-16-5

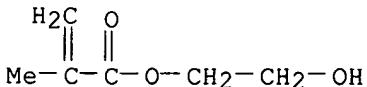
CMF (C6 H10 O3)x

CCI PMS

CM 3

CRN 868-77-9

CMF C6 H10 O3

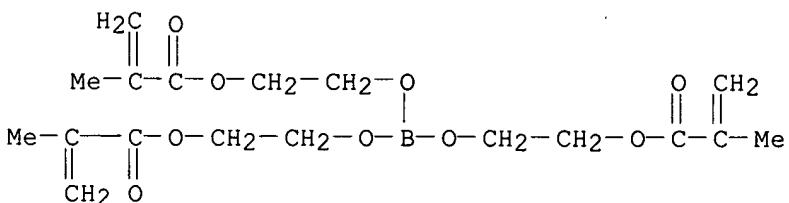


L38 ANSWER 8 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1974:49101 HCAPLUS
DN 80:49101
TI Polymerizing acrylonitrile
IN Yoshino, Tsuneo; Kenjo, Hideki
PA Toray Industries, Inc.
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN CNT 1

PATENT NO.		KIND	DATE	APPLICATION NO.	DATE
PI	JP 48060183	A2	19730823	JP 1971-95942	19711130 <--
	JP 55001286	B4	19800112		
PRAI	JP 1971-95942	A	19711130	<--	
AB	Borates with polymerizable ester groups were used as temporary crosslinking agents in an acrylonitrile(I) continuous polymerization procedure				

in which polar solvents were used to dissolve the polyacrylonitrile(II). Thus, I 100, Me₂SO 25, tris(2-methacryloyloxyethyl) borate [42175-72-4] 3, azobis(2,4-dimethylvaleronitrile) 0.6 and dodecyl mercaptan 0.2 part were placed into a PVC tubular cell which was inserted between steel plates and kept 10 min at 70, 80, and 90.deg., and the product stretched 2000% in 4:6 DMF-H₂O at 95.deg. to give a transparent filament.

IT **42175-72-4**
RL: MOA (Modifier or additive use); USES (Uses)
(crosslinking agents, temporary, in acrylonitrile polymer manufacture in
polar solvents)
RN 42175-72-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, borylidynetris(oxy-2,1-ethanediyl) ester
(9CI) (CA INDEX NAME)



L38 ANSWER 9 OF 10 HCPLUS COPYRIGHT 2006 ACS on STN
AN 1973:467429 HCPLUS

DN 79:67429
TI Unsaturated polyester resins which cure in the presence of water and which contain at least one dehydro monomer
IN Koch, Stanley D.; Gerber, Arthur H.
PA Horizons Inc.
SO U.S., 4 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

PI US 3743686 A 19730703 US 1971-154657 19710618 <--
 PRAI US 1971-154657 A 19710618 <--

AB Addition of hydrolyzable monomers, e.g. unsatd. anhydrides, mixed anhydrides of unsatd. carboxylic and boron or silicon acids, or borate esters, to unsatd. polyesters containing styrene or Me methacrylate gave resin compns. which could be cured at room temperature in the presence of H₂O. Thus, a mixture

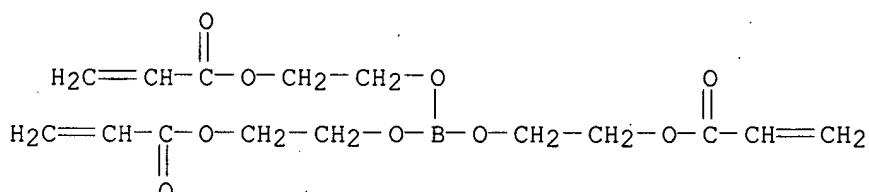
of H₃BO₃ 6.18, acrylic anhydride 40.32, anhydrous ZnCl₂ 0.004, and hydroquinone 0.020 g was heated at 20-70.deg. to give acrylic acid-orthoboric acid mixed trianhydride (I) [41621-92-5]. Addition of 13 g I to a mixture of maleic anhydride-phthalic anhydride-propylene glycol copolymer [25037-66-5] 75, styrene 12, and H₂O 3 g gave a resin with SPI gel time of 6.5 min compared with >1 hr for a similar polyester composition not containing I.

IT 32577-32-5 42175-71-3 42175-72-4

RL: MOA (Modifier or additive use); USES (Uses)
 (crosslinking agents, for unsatd. polyesters in presence of water)

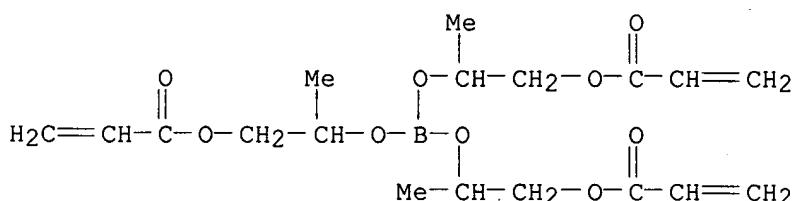
RN 32577-32-5 HCPLUS

CN 2-Propenoic acid, borylidynetris(oxy-2,1-ethanediyl) ester (9CI) (CA INDEX NAME)



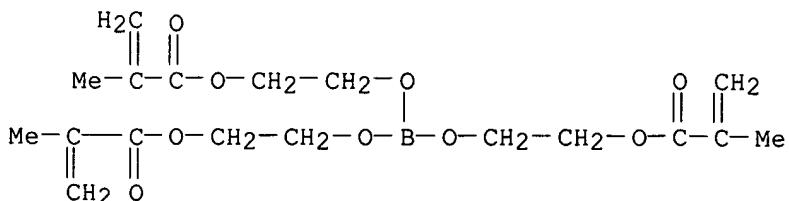
RN 42175-71-3 HCPLUS

CN 2-Propenoic acid, borylidynetris[oxy(2-methyl-2,1-ethanediyl)] ester (9CI). (CA INDEX NAME)



RN 42175-72-4 HCPLUS

CN 2-Propenoic acid, 2-methyl-, borylidynetris(oxy-2,1-ethanediyl) ester (9CI) (CA INDEX NAME)



L38 ANSWER 10 OF 10 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1971:126877 HCAPLUS
DN 74:126877
TI Vinylthioethyl borates for flameproofing polyesters
IN Naarmann, Herbert; Hartmann, Heinrich
PA Badische Anilin- & Soda-Fabrik AG
SO Ger. Offen., 6 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

PATENT NO.		KIND	DATE	APPLICATION NO.	DATE
PI	DE 1901058	A	19710211	DE 1969-1901058	19690110 <--
	DE 1901058	B2	19731018		
	DE 1901058	C3	19740522		
	FR 2032310	A5	19701127	FR 1970-713	19700109 <--
PRAI	DE 1969-1901058	A	19690110	<--	

GT For diagram(s), see printed CA Issue.

AB The borate flameproofing agents, $(H_2C:CHSCH_2CH_2O)_nB(OCH_2CH_2SH)_3-n$, where n is 2 or 3, effectively reduce the flammability of polyesters. Borates used include tris(2-vinylthioethyl)borate (I) and bis(2-vinylthioethyl)-2-mercaptopoethyl borate (II). A polyester was prepared from phthalic acid 1, maleic acid 2, and propylene glycol 3 parts by heating at 180° to 50 acid number, dilution with styrene to 66% polyester and acid number 30, addition of

0.4% cyclohexanone peroxide and 0.04% Co naphthenate, and hardening. A mixture of this polyester with 1.8% II ignited in 20-5 sec. (ASTM DG 35-56T) with 15 sec smoldering time as compared with 15-20 and .apprx.20 sec, resp., for a polyester containing 1.8% H3BO3. The borates are prepared by treating B(OH)3 with H2C:CHS(CH2)2OH and HS(CH2)2OH.

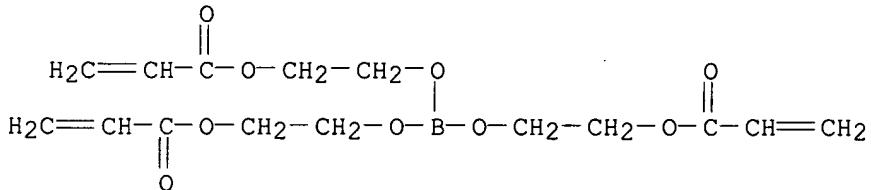
IT 32577-32-5

RL: USES (Uses)

(fireproofing with, of polyesters)

RN 32577-32-5 HCAPLUS

CN 2-Propenoic acid, borylidynetris(oxy-2,1-ethanediyl) ester (9CI) (CA INDEX NAME)



```
=> d 139 bib abs hitstr retable tot
```

L39 ANSWER 1 OF 3 HCPLUS COPYRIGHT 2006 ACS on STN

AN 2006:1010866 HCAPLUS

DN 145:380336

TI Gel electrolytes of borate acrylate polymers, and nonaqueous electrolyte secondary batteries using them

IN Secondary batteries using them
Okumura, Takefumi; Nishimura, Shin; Iwayasu, Norio; Kono, Kazushige; Yokoyama, Akihito; Mizutani, Masato; Ito, Tetsuya

TI Electrode for secondary polymer electrolyte battery and the battery
 IN OKUMURA, Takefumi; NISHIMURA, Shin; IWAYASU,
 Norio; YOKOYAMA, Shoichi; ITOH, Tetsuya; YABE,
 Takeshi; Ichimiya, Kengo
 PA Hitachi, Ltd., Japan; NOF Corporation
 SO PCT Int. Appl., 44 pp.
 CODEN: PIXXD2

DT Patent
 LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2006009284	A1	20060126	WO 2005-JP13671	20050720
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				

PRAI JP 2004-211412 A 20040720

AB The battery has a cathode containing a cation-intercalating cathode active mass, an anode containing a cation-intercalating anode active mass, and an electrolyte layer interposed between the cathode and the anode and composed of an ion-conductive polymer for transferring the cations; where the cathode and/or the anode comprises a B-cong. organic compound as a binder component; and the cathode and/or anode active mass is treated with silane, Al, or Ti for facilitating intercalation/decalation of cations, thereby suppressing decrease in charge/discharge capacity.

IT 866555-98-8

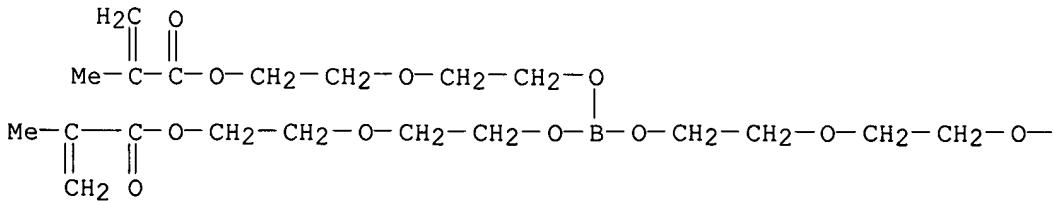
RL: DEV (Device component use); USES (Uses)
 (electrodes having boron-containing organic compound binders and modified active

mass for secondary lithium batteries)

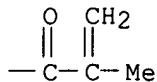
RN 866555-98-8 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, borylidynetris(oxy-2,1-ethanediyl-2,1-ethanediyl) ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



RETABLE

Referenced Author (RAU)	Year (R PY)	VOL (R VL)	PG (R PG)	Referenced Work (R WK)	Referenced File
Hitachi Ltd	2004			US 2004101758 A	
Hitachi Ltd	2004			JP 2004186150 A	HCAPLUS
Hitachi Ltd	2004			FR 2847721 A1	HCAPLUS
Hitachi Ltd	2005			JP 2005285416 A	HCAPLUS
Kabushiki Kaisha Samsun	1999			JP 11-329435 A	HCAPLUS
Kabushiki Kaisha Samsun	1999			US 6218050 B1	HCAPLUS
Sony Corp	1998			JP 10-125307 A	HCAPLUS
Sumitomo Chemical Co Lt	1996			JP 08-111243 A	HCAPLUS
Sumitomo Chemical Co Lt	1996			US 5571638 A	HCAPLUS
Sumitomo Chemical Co Lt	1996			EP 652602 A2	HCAPLUS
Toyota Motor Corp	2004			JP 20046237 A	
Yuasa Corp	2003			JP 200392138 A	

L39 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2005:1106331 HCAPLUS

DN 143:389780

TI Secondary batteries with high discharge capacity and cycle efficiency, and cathode and anodes therefor

IN Okumura, Takefumi; Nishimura, Shin; Iwayasu, Norio; Yokoyama, Akihito; Ito, Tetsuya; Yabe, Takeshi; Ichinomiya, Kengo

PA Hitachi Ltd., Japan; NOF Corporation

SO Jpn. Kokai Tokkyo Koho, 20 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2005285416	A2	20051013	JP 2004-94798	20040329

PRAI JP 2004-94798 20040329

AB The batteries contain ion-conductive polymer electrolyte layers and B-containing organic compds. as binders in cathodes and/or anodes.

IT 866555-99-9DP, lithium complex

RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)

(secondary batteries containing B-containing organic compds. as binders in cathodes and/or anodes)

RN 866555-99-9 HCAPLUS

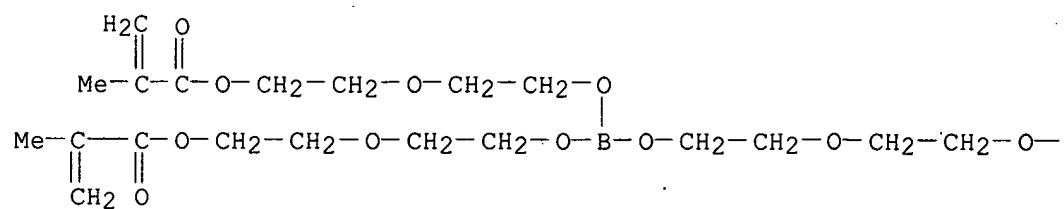
CN 2-Propenoic acid, 2-methyl-, borylidynetris(oxy-2,1-ethanediyoxy-2,1-ethanediyl) ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

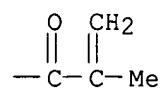
CRN 866555-98-8

CMF C24 H39 B O12

PAGE 1-A



PAGE 1-B



=>